

CLAIMS:

1. An elongated medical device comprising:
  - a) a first tubular member having a distal end and a proximal end and an inner surface and an outer surface;
  - b) a second tubular member having a distal end and a proximal end and an inner surface and an outer surface; and
  - c) a powder coated tie layer provided between said first tubular member and said second tubular member.
2. The medical device of Claim 1 wherein said first tubular member comprises a first material and said second tubular member comprises a second material different from said first material.
3. The medical device of Claim 2 wherein said tie layer comprises a blend of at least a first polymeric material and a second polymeric material wherein said first polymeric material is compatible with the material of said first tubular member and said second polymeric material is compatible with the material of said second tubular member.
4. The medical device of Claim 1 wherein said first and second tubular members are coextensive, one within the other, along at least a portion of the lengths thereof.
5. The medical device of Claim 4 wherein said tie layer is provided in predetermined, discrete locations comprising only a part of the portion of the length of said device in which said tubular members are coextensive.
6. The medical device of Claim 1 wherein said tie layer forms a lap joint bond between the first and second tubular members.
7. The medical device of Claim 1 wherein said tie layer forms a butt joint bond

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Tie layer rolls  
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Butt

called

between the first and second tubular members.

8. The medical device of Claim 1 wherein said first tubular member is an inner or an outer catheter shaft, and said second substrate is an inner catheter shaft, an outer catheter shaft, a balloon distal tip or a hypotube.

9. The medical device of Claim 1 wherein said first tubular member is an inner catheter shaft, said second tubular member is an outer catheter shaft, and said powder coated tie layer is located between said outer surface of said distal end of said inner catheter shaft and said inner surface of said proximal end of said outer catheter shaft.

10. The medical device of Claim 1 wherein said first substrate and said second substrate comprise at least one member selected from the group consisting of polyolefins, polyesters, polyethers, polyurethanes, polyureas, polyamides; nylons, poly(meth)acrylates, polymers of vinyl monomers, copolymers thereof, and mixtures thereof.

11. The medical device of Claim 1 wherein said first tubular member comprises high density polyethylene, said second tubular member comprises a polyether block amide copolymer.

12. The medical device of Claim 11 wherein said tie layer comprises a maleated polyolefin.

13. The medical device of Claim 11 wherein said tie layer comprises a blend of high density polyethylene and polyether block amide copolymer.

14. A method for assembling a medical device having at least two substrates comprising the steps of:

a) providing a first substrate having an inner or an outer surface;

- b) providing a second substrate having an inner or an outer surface;  
c) powder coating at least a portion of said outer surface of said first substrate or said inner surface of said second substrate resulting in a powder coated portion on at least one of said outer surface of said first substrate or said inner surface of said second substrate;  
5 d) contacting said first substrate and said second substrate at least at said powder coated portion; and  
e) thermally activating said powder coating to form an adhesive layer between said first substrate and said second substrate.
- 10 15. The method of Claim 14 wherein said first substrate comprises a first material and said second substrate comprises a second material different from said first material.
- 15 16. The process of Claim 14 wherein said first substrate is a dilatation balloon, and said second substrate is a catheter shaft or catheter distal tip.
17. The process of Claim 14 wherein said first substrate comprises at least one polyolefin or copolymer thereof, said second substrate comprises at least one member selected from the group consisting of polyesters, polyurethanes,  
20 polyureas, polyamides, nylons, polymers of vinyl monomers, poly(meth)acrylates, copolymers thereof, or mixtures thereof.
18. The process of Claim 14 wherein said tie layer comprises at least one polymer which is compatible with said first substrate and said second substrate or a blend of polymers in which at least one is compatible with said first substrate and at least one is compatible with said second substrate.
- 25 19. The process of Claim 14 wherein said tie layer comprises a maleated polyolefin.
- 30 20. The process of Claim 14 wherein said first substrate comprises a high density

polyethylene and said second substrate comprises a polyether-block-amide.

21. The process of Claim 20 wherein said tie layer comprises a maleated polyolefin.
- 5 22. The process of Claim 20 wherein said tie layer comprises at least one polyethylene and at least one polyether-block-amide copolymer.
23. A medical device comprising:
- 10 a) a first substrate formed of a first material
- b) a second substrate formed of a second material different from the first material;
- 15 c) a powder coated tie layer provided between, and adhering to, said first and said second substrates said powder coated tie layer comprising a blend of at least two polymeric materials wherein at least one of said polymeric materials is compatible with said first polymeric material of said first substrate and at least one of said polymeric materials is compatible with said second polymeric material of said second substrate.
24. The medical device of Claim 23 wherein said first substrate is a dilatation balloon, and said second substrate is a catheter shaft or catheter distal tip.
- 20 25. The medical device of Claim 23 wherein each of said first substrate and said second substrate are formed from a material selected from the group consisting of polyolefins, polyesters, polyethers, polyurethanes, polyureas, polyamides, nylons, polymers of vinyl monomers, poly(meth)acrylates, copolymers thereof, and mixtures thereof.
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